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Gitte Meyer
Copenhagen Business School, gitte@gittemeyer.eu

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Encounters between Science Communication Idea(l)s: A Comparative Exploration of Two Science Communication Logics, with a Focus on Possible Conflicts and the Potential for Mutual Learning

GITTE MEYER

CBS Center for Civil Society Studies
Copenhagen Business School
Porcelaenshaven 1, 2000 Frederiksberg
Denmark
gitte@gittemeyer.eu

ABSTRACT: Different ideas about the 'nature' of science communication and its role in society inform different understandings of and ideals concerning ethical challenges in science communication. This essay explores and compares two science communication idea(l)s. Both relate to science journalism: the tradition of science transmission and the logic of science discussion.

KEYWORDS: science journalism, science transmission, science discussion, knowledge societies, the deficit model

1. INTRODUCTION: BASIC ASSUMPTIONS AND CROSS-CULTURAL EXCHANGES

The task of articulating ethical issues that arise from science communication is accompanied by the equally demanding task of comprehending and articulating different understandings of the "nature" of science communication and its role in society. Because such understandings relate to what is taken for granted, they are not normally articulated. They rest on basic, tacit assumptions—ideas—about the order of things. Those ideas, in turn, somehow inform ideals and norms concerning what should be considered ethical challenges and what ought to be done. Idea(l)s or logics of that kind tend to vary from culture to culture. The scrutiny of basic assumptions, therefore, is crucial to any international and, thus, cross-cultural endeavour to discuss and articulate ethical issues. If the level of basic assumptions is ignored, exchanges across logics are likely to become muddled.

The following tentative comparative analysis of two science communication logics, both of which relate specifically to science journalism, should be seen against that background. It is an attempt to sketch and compare two distinct and genuinely different science communication idea(l)s—here dubbed *the tradition of science transmission* and *the logic of science discussion*—which are predicated on different basic assumptions and deliver different answers to questions such as: Why science communication? By whom? To whom? When? How?

Particular attention is paid to how the two logics differ from each other. They are presented as schematized versions of real-life phenomena, examples of how science communication idea(l)s may differ.

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The overall aim of this comparative exercise is to facilitate the identification of disagreement proper and of possibilities for mutual learning between two of the many possible science communication idea(l)s.

2. COMPARING APPLES AND ORANGES: BACKGROUND AND APPROACH

Science journalism is merely one aspect of the wider field of science communication, so it should be kept in mind that the analysis below focuses on science journalism alone. The analysis pivots on different understandings of the mores and means of science journalism. More often than not, however, those mores and means can be seen as expressions of general understandings of the mores and means of science communication in general.

It is suggested that the decisive differences between the two science journalism idea(l)s can be summed up as follows: The tradition of science transmission is the dominant idea(l). It takes the primacy of science for granted. Science is taken to constitute the epitome of reason and knowledge of reality. The logic of science discussion, on the other hand, takes the primacy of public discussion for granted. Science is taken to represent varieties of reason and knowledge of reality that must be dealt with, when relevant to public affairs, as part of a wider societal practice of reasoning. As a consequence, the former logic expects journalists to serve science, while the latter expects journalists to approach science guided by a general norm of independent, journalistic inquiry. The former comes with an idea of *science* journalism, the latter with an idea of science *journalism*.

The two idea(l)s can be seen as representatives of Atlantic and northern European approaches (Hallin & Mancini, 2004), respectively, or as representatives of scientific and classical humanist approaches (Merton, 1968)—or even as expressions of politico-cultural differences between language areas (Meyer & Lund, 2008). Thus, the relationship between the two is characterised by a good many conflicts, but should not, however, be viewed as dichotomic. Rather, the two logics are genuinely different, and the comparison can, indeed, be seen as a comparison between apples and oranges. It makes sense to explore the differences. Crucial among those are the different normative roles ascribed to scientists, journalists and other citizens with respect to science communication.

The point of analytic departure has been ongoing efforts to identify, characterize and compare two distinct traditions of journalism: the Anglo-American Reporter Tradition and the north- and central-European Tradition of Publizist[1] Journalism (Meyer & Lund, in press). Those efforts, in turn, have been prompted by practical experience with journalism on science- and technology-related issues, followed by academic inquiry (Meyer, 2005) into the journalism-science relationship.

Furthermore, the analysis draws on the reading and comparison of examples from different points in time; from, on the one hand, British and, on the other hand, German and Swedish discourses about science communication. Some British and German examples have been drawn from the gene therapy debates of the early 1990s (Appleyard, 1996; Durant, 1995; McKernan, 1995; McLaren, 1994; Monbiot, 1995; Thurau, 1994). In both countries, the public image of science was debated and related to financial problems in science. How was it

[1] The (German) spelling with a "z"—Publizist—has been chosen to prevent confusion with the notion of a "publicist" as a PR or marketing agent and to stress the meaning of participation in public debate. Although the latter meaning of a "publicist" does, indeed, occur in American texts (see for instance Jacoby, 2000; Stearns, 1921/2012), the former interpretation seems to be dominant.

debated? What was taken for granted, and what challenges were recognised? Could related assumptions and patterns be identified in recent material from, respectively, British (BBC Trust, 2011, 2012; Morgan 2012) and Swedish (Björkstén, 2012) documents about science journalism?

The topic is anything but exact, and the analytic approach is explorative. Consequently, the analysis is meant only to suggest. The two idea(l)s are presented as schemata which are open to revision. They are academic models. As such, however, they might prove useful as starting points for further inquiry, reflection and exchanges.

The process of analysis has indicated how difficult exchanges may be between representatives of logics rooted in different historical experiences, languages, and conceptual understandings. Even though both logics draw on a shared Western cultural heritage, misunderstandings may easily arise.

A few examples from the sphere of politics may suffice as illustrations of the potential for misunderstandings: One logic is at home in two-party systems, another in multiparty systems, with the former being much more open to religious rhetoric in politics than the latter. This has a bearing on the understandings of politics (Mutz, 2006) and journalism (Nord, 2001; Underwood, 2008). Moreover, the differences between conservative and liberal attitudes in one system cannot be transferred to cover the differences between right and left in the other. Crucial to our topic, "creationism" appears to be a rather prominent topic in the USA, but presents no serious challenge to natural science in the North European context. And while the differences between conservative and liberal attitudes may move along anti- versus pro-science lines, stances towards science do not constitute a dividing line between North European right and left attitudes. In addition, the German and Scandinavian terms for science—*Wissenschaft* in German, *videnskab* in Danish—include the humanities.

3. THE TRADITION OF SCIENCE TRANSMISSION

The tradition of science transmission is described here as an instance of the Anglo-American reporter tradition which can be placed within an Atlantic media model (Hallin & Mancini, 2004) and has come to be widely seen as the epitome of modern journalism (Meyer & Lund, 2008, in press). Similarly, the tradition of science transmission is probably viewed by many as the epitome of science journalism.

The reporter framework has been connected to the early twentieth century (Schudson, 2000) and evolved in the aftermath of the American civil war on the basis of experience with how journalism might stir "sectional antipathies" and prepare the ground for violent conflicts (Cater, 1959, p. 85). The founders of the reporter tradition seem to have opted for non-participation in human affairs as the safest bet, much as did the founding fathers of the academic science tradition of the early Royal Society, who were looking for firm ground in the aftermath of the English civil wars (Sprat, 1667/1734). Indeed, the reporter tradition appears to be using science as its model and is marked by a veneration of science (Altschull, 1990).

Generically, the reporter is defined as a producer of naked information to be transmitted to her social counterpart: the public as consumers of the journalistic products. The producer-consumer relation ties the reporter to her audience, and disconnects her from it. She is supposed only to transmit naked observations, regarding facts and events, and to consider herself an outside observer of human affairs, committed to professional values of non-participation: objectivity, neutrality and impartiality. Politically, the reporter is supposed to

facilitate that the people may control the holders of power. Activism, advocacy, bias, commentary, enthusiasm, interpretation and partisanship are to be strictly avoided. News is contrasted sharply with views. Reporters, it has recently been argued, must provide "the truth, beyond differences of opinion" (Muhlmann, 2008, pp. 6, 17). When conflicts arise, reporters are generally expected to provide balance. They should hear both sides of the conflict.[2]

The centerpiece of the reporter framework is the notion of universal truth which is tied to an ideal of unity, but also—because the notion of universal truth comes with a tendency to generate dichotomies (Meyer, 2012)—serves as a source of continuous ambivalence and tension. That again, is compounded by the fact that the reporter is anchored, at the same time, to the sphere of truth and to the marketplace. Accordingly, the tradition has come to comprise an ever-changing cluster of different schools. Some favor a "facts function," others a "forum function" of the media, but the search for truth and unity is pivotal to all (Nord, 2001).

The fact that science functions as a model of the reporter tradition influences the perception of science journalism and makes it incomparable with other areas of reporting. As opposed to political opinions and power plays and political or religious beliefs and zeal, science represents knowledge of reality, the search for truth and the highest standards of objectivity, neutrality and impartiality. Science is, therefore, considered a righteous cause and a privileged journalistic subject area. The reporter should serve science, and the facts to be transmitted by the science reporter are already produced by scientists.

Scientists are contrasted sharply with non-scientists. In 1959, it was put succinctly by C. P. Snow, often cited in exchanges about science communication: "[T]heir attitudes are closer to other scientists than to non-scientists who in religion or politics or class have the same label as themselves" (p. 10). Snow also linked the scientific community to equality and democratic attitudes.

The purpose or mission of science journalism is to further the authority of science, to defend science against its enemies and to support the dissemination and implementation of scientific knowledge. That includes the goals of increasing the degree of science literacy in the public, helping individuals to get more accurate pictures of the world, inducing changes of behavior, and facilitating that policy decisions be based on sound science. Science should be communicated *to* the lay public of non-scientists.

Defining the public as non-scientists, the tradition of science transmission is based on, but has also developed an uneasy relationship with, the so-called deficit model of the public. Vis-à-vis science, the public is perceived to be lacking of knowledge and in need of science education. The public is a lay public, and potential consumers of science journalism. As such —and corresponding to an assumed dichotomy of facts versus values—it is also assumed to be less susceptible to intellectual than to emotional appeal. The ground is prepared, thereby, for a classical reporter dilemma, in that the dry transmission of scientific facts will not do. Rather, dramatization and fascination seem required. The point was made more than half a century ago: "The reader, it has been said, is the median man, destined like Orphan Annie, never to grow an inch. . . . It is the median man's attention, not his intelligence that must be attracted and held" (Cater, 1959, p. 171).

To the particular field of science reporting there seems to be no way to get around the deficit model, but that model has in recent decades been subject to recurring criticism. It keeps bobbing up again, but so does the criticism (Kahlor & Stout, 2010; Zenker, 2012). Science, it

[2] The assumption that conflicts are two-sided forms part of the reporter tradition.

should be remembered, is linked not only to universal truths, but also to equality and democracy. In the context of modern knowledge societies, characterised by the spread of science into ever more areas of life, the model can be seen as an expression of a condescending attitude toward the people—the *demos* of democracy—and the autonomous citizen. Consequently, the aim of improving the public understanding of science has been supplemented by participatory approaches and the aim of furthering public engagement with science (Kahlor & Stout, 2010).

The scientist, within his speciality, should tell how things really are. In order to maintain his position as an authority and to protect the reputation of science (Meyer & Sandøe, 2012), he should do so objectively, neutrally and impartially. The role of the scientist is the role of a knower. Disagreements among scientists tend be viewed as instances of scientific uncertainty: they disagree, it appears, because they are still looking for the true answers. Even when scientists are dealing with scientific uncertainties or with huge systems that exceed the capacity of the human brain, concerns about scientists' possible lack of knowledge and understanding tend to be overruled by concerns about knowledge deficiencies in the public (Dahlstrom & Ritland, 2012).

For several reasons, however, it is far from easy for scientists to transmit their knowledge objectively, neutrally and impartially when they move from the scientific community into a wider society which is assumed to be guided by completely different norms. In essence, it is perceived as a move from a sphere of a quiet and dignified search for true answers to complicated questions into a sphere of cynical power play and ideological warfare. It is difficult for the scientist to transmit his knowledge and be true to the norms of science. Colorful language, including striking metaphors and analogies, might support attempts to explain complicated topics—but such usage may also be frowned upon as appeals to the irrational that may erode the rational quality of science. Moreover, the scientific community is "still not fully equipped to deal with the media" and, must learn to "play the game" and present coherent responses to the world (Morgan, 2012).

The journalist should assist in completing the task of transmission. Meticulous reading of scientific journals helps her choose the topics to be reported on. Ideally, she should be a trained scientist herself or, at least, she should have attended hands-on science courses. Otherwise, she might not get the science right. Inaccuracy, then, would be added to the damage to the science that cannot be avoided when it is reduced and simplified and packaged for transmission to the lay public. It is a continuous science journalistic dilemma that although the science journalist is committed to science, she can only transmit reduced versions. She must even dramatize and attempt to fascinate the lay audience. Ideally—in order to serve the cause of science and to serve democratic or anti-elitist causes of inclusion—science should be shown to be fun. Outcomes of rational inquiry must be transmitted by way of appeals to the irrational, supported by (rational) transmission techniques and methods.

More recent dilemmas relate to scientists who advocate political causes (Goodwin, 2012; Sjölander, Carvalho, & Maeseele, 2013) or who combine their scientific activities with financial interests in their own individual scientific fields—behavior which can be seen as a threat to the authority of science as objective, neutral and impartial. Science reporters are also confronted with dilemmas when scientists disagree. Increasingly, however, the notion of scientific consensus is deployed as a means to partly dissolve those dilemmas by guiding journalists toward those scientific voices that represent the current majority in a more or less clearly defined scientific area and away from "Fringe Scientists" (Stocking, 1999).

3.1 The Tradition of Science Transmission: A Recent Illustration

Recent BBC initiatives illustrate a good many aspects of the tradition of science transmission. The initiatives appear to have been triggered by controversies relating to the debate on climate change, but have much wider implications.

As a key part of a review of its coverage of science, the BBC Trust commissioned an emeritus professor of genetics (Steve Jones) to make an evaluation—published in 2011—which should "include not just natural sciences but also coverage of technology, medicine and the environment relating to the work of scientists" (BBC Trust, 2012, p. 1). The review was followed-up by media training for scientists; new science training workshops and seminars for journalists; new routines to widen contacts with scientists and new audience research—the overall aim being to increase "the firepower of BBC Science" (BBC Trust, 2012, p. 6). The Trust, moreover, has decided to partly suspend the general demand that journalism should be balanced. Thus, the coverage of science-related issues should instead be guided by a principle of "due impartiality" or "due weight":

> On the application of due impartiality, the Trust agreed with Professor Jones that, "there should be no attempt to give equal weight to opinion and to evidence" and that a "false balance" (to use Professor Jones' term) between well-established fact and opinion must be avoided. (BBC Trust, 2012, p. 1).

The purpose of the principle of "due weight" is, it is emphasized, "to achieve impartiality in science reporting, especially in areas of very intense debate and divided opinion, such as climate change" (BBC Trust, 2012, p. 8). The principle is tied to the notion of scientific consensus. The Trust points out certain difficulties:

> The broad principle of "due weight" is, of course, easily explicable, and in practice the centre of gravity in some subjects can be readily identified. But in a wide range of areas (for example, badger culling, stem cell research, genetically modified food or nuclear energy) it is harder to delineate where the scientific consensus might lie. (BBC Trust, 2012, p. 8).

Lack of willingness among scientists to participate in discussions on current affairs constitutes another problem. Thus, the team behind a specific program "has bid for many more potential panelists from the science world—but most refuse because they wish to talk about their field and do not want to become involved in current affairs" (BBC Trust, 2012, p. 12).

4. THE LOGIC OF SCIENCE DISCUSSION

It would be difficult to identify and empirically document the logic of science discussion at work anywhere in any resemblance of pure form. The logic originates in a tradition of *publizist* journalism that has been marginalized for decades. Moreover, the current wave of attention being paid to science communication has gained momentum precisely during those same decades. Consequently, the logic of science discussion can hardly be characterized as a tradition, but, rather, can be reconstructed as a logic, and traces of it can be identified in recent and current attitudes and practices.

The *publizist* framework of thought on journalism appears to be—or to have been—thriving in particular, but not exclusively, in German-speaking and Scandinavian countries. Correspondingly, it can be placed within a north/central European media model (Hallin & Mancini, 2004) and is likely to be less compatible with two-party systems than with multiparty

systems, corresponding to a pluralist notion of society as being composed of multiple interest groups. Characteristically, key notions of the tradition resist direct translation into English, with *Öffentlichkeit*—the institution of public discussion—being one of several examples (Meyer & Lund, 2008).

The *publizist* tradition is based on a practical (as distinct from technical) approach in the classical sense and has probably been on the defensive since the rise of the reporter tradition and, even more so, since the end of the Second World War. Widely neglected in the field of journalism studies, it has a history of practice rather than of theory and empirical study (Meyer & Lund, in press). Key notions of the tradition, such as *Aktualität* (topicality) and *Redigieren* (editing), originate in the Latin verb for action: *agere*. The notion of *Aktualität* (Enzensberger, 1964) is geared towards the identification of burning issues in need of public scrutiny. Max Weber made a lasting contribution to the *publizist* framework of thought by linking politics to an ethics of responsibility for future action—as distinct from an ethics of ultimate ends, typical of religion—and describing journalism as the epitome of a political profession (Weber, 1919/1992, pp. 36–37, 70).

Rather than being defined, in the first place, as a producer, the *publizist* journalist is defined as a participant or co-citizen. She is ascribed the task of editing in an ongoing public discussion on public affairs which serves as a form of inquiry into the conditions for collective action. The journalist is expected to explore issues from many different perspectives, and to facilitate the expression of disagreement—the civilized exchange between different points of view—which is valued and seen as something that ought to be maintained (Enzensberger, 1964; Rathgeb, 2005) and that demands moderation from all participants. Journalism includes independent inquiry, reporting, interpretation and critique. Truthfulness is a guiding value—the degree of mutual trust needed to maintain the institution of public discussion depends on it—and is juxtaposed to lying (Kapuściński, 2002, p. 108).

Increasingly, public affairs include or even hinge on results from scientific development. Some issues relate to the development and possible uses of new technologies. From a *publizist* perspective the uses of scientific knowledge and science-based technologies, and the ways such knowledge and technologies come about, are public affairs and, therefore, must be subjected to public discussion. Science should not simply be communicated. There is, rather, a need for reasonable communication *about* science.

In other cases, scientific or other varieties of academic inquiry have been made regarding issues of a non-technical nature, and the outcomes and assessments from such inquiries should be included in public discussions. Scientists should not simply communicate *to* other citizens but *with* them. To some extent and under certain conditions it is assumed to be both possible and necessary to argue with science and scientists and, in particular, to consider possible limitations when scientific findings are taken into the complexity of societal practice. Questions of what is and what is not possible to know, and in what ways (Arendt, 1998, p. 49) constitute a continuous subtext of exchanges relating to science.

The role ascribed to the public is that of the co-responsible citizenry. By definition, citizens have an interest in science- and technology-related issues that have bearings on public affairs. Most citizens, most of the time, are not really interested in science-related issues and only follow debates from a distance, if at all, but in most cases—according to a multiplicity of circumstances—some will have something to contribute to the continuous process of public opinion formation. Technical aspects must be explained to become accessible to non-

specialists, but the public is definitely not composed of pupils (Die Zeit, 2012), and the quality of being lay is not the defining feature of the public as an audience.

The role most suited to scientists within the logic of science discussion is that of citizens with specialized knowledge or, if you like, of public intellectuals in a small way. This means that scientists should master the vernacular and possess knowledge about—not be ignorant of—the societal context of their specialised knowledge (Jacoby, 2000). Most scientists, most of the time, simply need to get on with their work, but now and again their knowledge becomes topical. They should be ready, then, to contribute to public discussion—including civilized exchanges with possible critics of their current projects—with knowledge claims and personal assessments and opinions. If they do so, scientists are likely to gain trust in so far as they are seen to be open about scientific uncertainty and vested interests, acknowledge the limits of their scientific expertise and authority and do not appear to be obsessed with their topics and, thereby, prone to make inflated claims (Primas, 2002).

Scientists may make a case: participation in politics is not viewed as basically suspicious. The ferocity of such notions as "advocacy" and "partisanship," however, is not compatible with the political institution of public discussion between multiple points of view, and they resist direct translation as political notions into, for example, Danish. The logic, thus, has plenty of room for scientific knowledge claims and for scientists' personal assessments and arguments, but collapses if assessments and arguments come to be presented as impersonal knowledge that demands straightforward deference and aims at halting discussion.

The science journalist is expected to be a science *journalist*. She should be knowledgeable and competent within her field, but so should journalists who practice in other fields. The journalistic task remains one of facilitating public discussion between different points of view. Different positions should be critically inquired into, and the vested interests of participants and stakeholders should be pointed out. That includes the positions and interests of scientists.

The science journalist has twin tasks: demystifying and making scientific approaches, findings and claims accessible to non-specialists, and asking questions concerning legitimacy. Such questions relate to purposes, assumptions, uncertainties and social and financial interests; they belong to the context of societal practice. Scientists are in possession of specialised knowledge from specific fields. They may also be isolated, to some extent, within those fields. Journalists come with experience of contextualization from a variety of scientific specialities. The relation between scientists and journalists is not one of simple asymmetry between knowers (the scientists) and non-knowers (the journalists, representing a lay public). Rather, there is a relation of double asymmetry and, thus, there is a basis for a sort of reciprocity. The absence of scientific specialisation in the journalist is not a deficiency, but a journalistic merit.

The general *publizist* demands for pluralism and moderation are also expressed in methodical pluralism—choosing approaches on a case-to-case basis—and in appreciation of the open-endedness of human language. Affection for language is a feature of the tradition (Kapuściński, 2002, p. 112; Timms, 1986, p. 45). Metaphorical abstinence, thus, is neither expected of nor valued in journalists and scientists. But metaphorical moderation is.

Increasing scientific specialization, accompanied by an increasing risk of narrow-mindedness in scientists, is viewed as a challenge, as is the growth of science PR, accompanied by the increased risks of hype—viewed as a variety of lying—and attempts to oversell scientific projects. The identification of current ethical challenges, as seen from within the

logic, however, is hampered by the fact that the logic is hard-pressed by the increasing adoption of notions and concepts from the tradition of science transmission.

For example: Scientific and technological uncertainty and how such uncertainty may be reasonably assessed, presented and discussed from case to case, is no doubt viewed as a major ethical challenge. When one thinks within the logic of science discussion, that challenge becomes linked to the logic's preoccupation with limits and the limitations of science. One of the most urgent ethical challenges, thus, originates in knowledge questions. Along the lines of an assumed facts-versus-values dichotomy, however, a tendency has become dominant to radically separate ethical issues from knowledge questions. Consequently, attempts to face up to challenges as ethical-cum-knowledge questions are prevented.

4.1. The Logic of Science Discussion: A Recent Illustration

As mentioned earlier, concepts and notions from the tradition of science transmission have become dominant also in those societies and language areas that would seem to constitute a natural home for the logic of science discussion. Clear-cut practical examples of the logic, therefore, are hard to come by, but illustrations of significant traits may be found. One such illustration is a 2012 speech which was held by the head of the science division of Sveriges Radio (Swedish public service broadcaster), Ulrika Björkstén, when she received a prize for her work (Björkstén, 2012).

Björkstén used concerns about democracy as her point of departure. The combination of an increased significance of science in and to society, and increasing specialization in science, is not easily reconciled with political democracy, she argued. According to Björkstén, the rise of the expert society may contribute to pushing society toward "a state of stupidity," and the maintenance of a democratic society depends on the maintenance of critical, competent and independent science journalism as a public service. Such journalism, in her view, should walk on two legs. It should explain and make scientific findings and claims accessible to non-specialists. And it should inquire independently of various stakeholders, scientists included. Indeed, she suggested, conflicts of interest in science amount to some of the most urgent and difficult challenges to current science journalism.

The frequent references in science communication debates to C. P. Snow's "two culture"' thesis are dismissed by Björkstén. She characterizes the view of the role of science in society that appears in Snow's analysis as outdated and as a part of the problems that current science journalism is faced with. The analysis made by Ulrich Beck, in his book on the "risk society," has more to offer, she thinks. In her interpretation it offers a more ambiguous view of the role of science in society: Everybody depends on the expertise of many others, and all depend on huge and increasingly opaque technical systems. Power structures are intimately connected with the possession of scientific expertise.

Against that background, and in order to prevent democratic deficits, science should, according to Björkstén, be presented, inquired into and discussed openly, and should neither be assumed to be good nor bad by definition. Science journalists should not restrict themselves to transmission activities, but should, according to the case, independently analyze, for instance, how scientific findings have come about, what kinds of relevant criticism scientific knowledge claims may give rise to, and how different varieties of experts approach the same issues in different ways. Science journalists should be able to distinguish between more and less knowledgeable voices. It is not so that any argument on any subject can be considered equally

valid. At the same time, a healthy scepticism should be maintained with respect to the objectivity of experts.

5. CONCLUSION: SHARED ETHICAL CHALLENGES AND POSSIBILITIES FOR MUTUAL LEARNING

The two science communication logics that have been briefly suggested here can be linked to different frameworks of thought on journalism, and, even, to the kinds of differences between academic traditions that Robert K. Merton, the American sociologist, addressed more than six decades ago in his essay on social scientific, American mass communication research and European *Wissenssoziologie* of a humanist vein (Merton, 1968). The differences are genuine, and they go deep. They are related to different historical experiences. They are expressed, not least, in different understandings of seemingly shared concepts and in terms that resist direct translation. The conditions for the necessary exchanges about shared ethical challenges are, in other words, ripe for mutual misunderstanding, in which genuine conflict issues may be ignored and superficial ones exaggerated.

Strange things may happen when notions and concepts are taken from one cultural context into another without proper attention to the possible effects of the change of context. For instance: Translated into "public sphere," the German and Scandinavian notion of *Öffentlichkeit* tends to morph from signifying something people do—discuss—to signifying a place or space. More often than not, it even becomes tied to communitarian ideals of unity, rather than to the exercise of civilised disagreement (Meyer & Lund, 2008).

The other way around, when northern Europeans adopt the American ideal of the journalist who controls the holders of power on behalf of the people, they may extend the approach to encompass scientists. Scientists, then, come to be viewed as holders of power rather than as representatives of truth (Meyer, 2006). Another example: In an American context, it has been argued, "the more people know, the less politically effective we allow them to be," and "'the political power of professionals can be retained only if it is not exercised'" (Goodwin, 2012, p. 159). Transferred to a northern European context, however, strong beliefs in impersonal knowledge may have the effect that "the more people present their personal opinions as impersonal knowledge, the more politically effective they are allowed to be," or "the political power of professionals can be exercised only if it is disguised as non-political."

The possible growth of superstitious beliefs is a shared concern of the two logics, but their arguments proceed along very different lines. According to the tradition of science transmission, superstitious beliefs may be generated if the authority of science decreases. The maintenance of scientific authority, therefore, is viewed as imperative. According to the logic of science discussion, however, superstition is given free rein if continuous, critical discussion about science is neglected. All that poses as science is then likely to be accepted as scientific. Strong beliefs in science are seen as possible generators of superstition. Critical discussion is viewed as imperative to prevent superstition.

Exchanges across logics might become fertile if the basic differences were taken into account and regarded by all as possibilities for seeing things in a different light. Why is it that one logic wants to fascinate and the other to demystify? Why is "advocacy" anathema in one logic, and "hype" in another? Is it so that one logic takes openness (Meyer & Sandøe, 2012) to mean, first and foremost, accountability, while the other logic tends to emphasize self-critical, intellectual reflection (Gadamer, 1993, p. 157)? Does one logic assume a basic kinship

between authority and trust (Hundleby, 2012), while the other may be more inclined to link authority to demands for deference and takes trust to be a precondition for reciprocity?

Both logics, it seems, are in need of adjustments and revisions if they are to be fit to cope with the development of knowledge societies, marked by the expansion of scientific approaches into ever more areas of life, by the increasing commercializaation of science and by the prominence of scientific and technological uncertainties in areas of relevance to public affairs. Do scientific approaches make sense irrespective of the subject area? It is becoming increasingly difficult to find scientific specialists who are independent of vested interests, so what can be done to deal with that problem? Increasingly, science journalists and other communicators are employed as PR agents by scientific institutions who want to further their own specific interests. Should that be considered an ethical challenge? How should scientific and technological uncertainties be understood, and how are such uncertainties connected to disagreements among scientists?

Representatives of different science communication logics frame current challenges differently and, consequently, come up with different responses. The quality of those diverse responses, however, could benefit from knowledge of different science communication idea(l)s. At the end of the day, exchanges across different understandings might even result in some shared responses.

Epilogue

In 1506, Albrecht Dürer completed the painting *Christ among the Doctors*. After more than five centuries, the painting is still likely to have an unsettling effect on most intellectuals: It is a symbolic representation of a confrontation between *good,* in the shape of Christ, and *evil*, in the shape of learned doctors with demonic features (Arasse, 2012). It is, thus, a stark reminder of the ambivalence towards learning and knowledge that forms part of the early history of modern Western thought, marked by commitment to, but also fear of, learning and knowledge.

The tradition of science transmission and the logic of science discussion can be seen as current outcomes of centuries of attempts to deal with that ambivalence. But it has not gone away. There is still commitment and fear; or, more moderate, there is respect and concern. The ambivalence, it appears, must be dealt with continuously. As long as ideas of demonic or other godlike traits in science are avoided, it seems a difficult, but not insurmountable task. We can talk it over.

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